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EXAMINER	
RYMAN, DANIEL J	

ART UNIT	PAPER NUMBER
2665	12

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/462,895	CHITRE ET AL.	
	Examiner	Art Unit	
	Daniel J. Ryman	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-14 and 18* is/are allowed.

6)☒ Claim(s) *15-17 and 19-38* is/are rejected.

7)☒ Claim(s) *39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Amendment B, filed 3/18/2004, with respect to claims 1-13 have been fully considered and are persuasive. The rejection of claims 1-13 has been withdrawn.

2. Applicant's arguments, see Amendment B, filed 3/18/2004, with respect to the rejection(s)of claim(s) 17 under Nishimura (USPN 5,570,362) in view of Woo et al (USPN 5,425,101) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Carr (USPN 5,293,379) in view of Naimpally et al (USPN 5,650,825) in further view of Woo et al (USPN 5,425,101).

3. Applicant's arguments, see Amendment B, filed 3/18/2004, with respect to the rejection(s)of claim(s) 19-29 and 31-33, under Nishimura (USPN 5,570,362) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Raychaudhuri et al (USPN 5,684,791).

4. Applicant's arguments, see Amendment B, filed 3/18/2004, with respect to the rejection(s)of claim(s) 30 under Woo et al (USPN 5,425,101) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Raychaudhuri et al (USPN 5,684,791).

5. Applicant's arguments, see Amendment B, filed 3/18/2004, with respect to the rejection(s)of claim(s) 38 under Woo et al (USPN 5,425,101) have been fully considered and are

persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Bansal et al (USPN 5,285,441).

6. Applicant's arguments filed 3/18/2004 have been fully considered but they are not persuasive with regards to claims 15, 16, and 34-38. On pages 35-37 of the Response, Applicant argues, with respect to claims 15 and 16, that the insertion of added information is contrary to the goal in Carr to simply compress the transmitted data. Examiner, respectfully, disagrees. In Naimpally it is assumed that the additional data is data that would otherwise have been transmitted. By placing this information in null packets, bandwidth is conserved. Thus the combination of Carr and Naimpally suggests nulling fields that can be regenerated at the receiving end (HEC information) and then using this excess bandwidth to transmit other information that would have been transmitted anyway (non-HEC information). In this manner, the objective of Carr is still met since the bandwidth is conserved while all necessary information is transmitted.

7. Applicant also argues Carr does not specifically teach deleting the HEC byte. While this is true, Examiner submits that Carr also discloses that any field which can be regenerated at the receiver can be nulled. Thus, although Carr does not specifically disclose an HEC byte, Carr suggests using the HEC byte. Examiner also submits that the newly used reference, Raychaudhuri et al (USPN 5,684,791), teaches that the HEC byte can be regenerated at the receiver (see col. 5, lines 30-44).

8. Given the above arguments, Examiner maintains the rejection of claims 15 and 16.

9. On pages 38-40, Applicant argues, with respect to claims 34-36, that Woo does not teach determining the number of bytes in error in the data. Examiner agrees which is why Examiner

combined Woo with Scarpa. Applicant goes on to argue that Scarpa cannot remedy this deficiency since Scarpa concerns pattern matching, not determining the number of bytes in error. Examiner, respectfully, disagrees. It is because Scarpa is concerned with pattern matching that Scarpa teaches determining the number of bytes in error. Scarpa teaches that when matching the synch pattern, a perfect match is not necessary. Thus Scarpa suggests that a unit can determine a number of bits that are in error, and, dependent upon this number being lower than a threshold, the unit can declare synchronization. As such, Examiner maintains the rejection of claims 34-36.

10. On pages 39-40, Applicant argues, with respect to claim 37, that Applicant has demonstrated in the disclosure of the invention that the number two is preferred for a threshold and so it would not have been obvious to one of ordinary skill in the art to use the number two for a threshold. Examiner, respectfully, submits that Applicant has misinterpreted the rejection. In order to overcome the rejection, Applicant needs to provide evidence that using the number two for the threshold is critical. Instead Applicant submits that the use of a threshold is critical and the use of the number two for the threshold is preferred. Since Woo in view of Scarpa disclose that the threshold is a certain number of bytes, but Woo in Scarpa do not disclose a particular number of bytes for the threshold, Examiner will maintain that using the number two for the threshold is obvious unless Applicant can provide evidence that using the number two for the threshold is critical (not just preferred).

11. On pages 40-41, with respect to claim 38, Applicant requests evidence for Examiner's official notice. As evidence, examiner submits that Raychaudhuri in view of Bansal discloses identifying bits in error (Raychaudhuri: col. 8, lines 12-15) where an ATM cell containing bits in error is dropped (Raychaudhuri: col. 8, lines 1-3 and col. 12, lines 28-36) and replaced by an

idle/unassigned cell (Bansal: col. 5, lines 1-5) in order to ensure the continuity of the cell stream (Bansal: col. 5, lines 1-5).

12. Given the above arguments, Examiner maintains the rejection of claims 15, 16, and 34-38. Examiner urges Applicant to amend the claims to add further limitations which will distinguish the claims from the prior art.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claims 19-23, 30, and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Raychaudhuri et al (USPN 5,684,791).

15. Regarding claim 19, Raychaudhuri discloses a method for encoding ATM cells for transmission over a wireless link comprising the steps of: receiving an ATM cell stream comprised of a plurality of ATM cells each including a header and payload (col. 2, lines 51-58; col. 4, lines 41-59; and col. 5, lines 30-44); assembling a header frame (channel frame) comprised of headers of said plurality of ATM cells (Fig. 4; col. 5, line 54-col. 6, line 24; and col. 8, lines 59-67) where the channel frame comprises the headers of a plurality of ATM cells in addition to other information.

16. Regarding claim 20, referring to claim 19, Raychaudhuri discloses that the step of assembling said header frame further comprises: partitioning said header frame comprised of

headers of said predetermined number of ATM cells into a first section (downlink subframe) and a second section (uplink subframe) (Fig. 4; col. 5, line 54-col. 6, line 24; and col. 8, lines 59-67); said first section comprised of a second predetermined number of headers from said first predetermined number of ATM cells and an added cell made up of control bytes (control messages, such as ACK message) (col. 5, lines 45-53; col. 6, lines 1-6; and col. 9, lines 1-22) where the predetermined number can be any number, including 0; and said second section comprised of having a third predetermined number of headers from said first predetermined number of ATM cells (Fig. 4; col. 5, line 54-col. 6, line 24; and col. 8, lines 59-67).

17. Regarding claim 21, Raychaudhuri discloses a method for encoding ATM cells for transmission over a wireless link comprising the steps of: receiving an ATM cell stream comprised of a plurality of ATM cells (col. 2, lines 51-58; col. 4, lines 41-59; and col. 5, lines 30-44); assembling a payload frame (channel frame) comprised of payloads of said plurality of ATM cells (Fig. 4; col. 5, line 54-col. 6, line 24; and col. 8, lines 59-67) where the channel frame comprises the payloads of a plurality of ATM cells in addition to other information.

18. Regarding claim 22, referring to claim 21, Raychaudhuri discloses that the payload frame is comprised of a predetermined number of said plurality of ATM cells arranged in a matrix comprised of an i number of rows and a j number of columns (transmission table) (col. 8, line 59-col. 9, line 8).

19. Regarding claim 23, referring to claim 22, Raychaudhuri discloses that the step of assembling said payload frame further comprises: adding a predetermined number of bytes of Payload Error Correction Code (PECC) to all i number of rows of said payload frame (CRC) (col. 8, lines 59-67) where the CRC is added to each cell and so to each row of the table.

20. Regarding claim 30, Raychaudhuri discloses a method of restoring an ATM cell stream sequence after transmission over a wireless link comprising the steps of: recording the original positions of idle/unassigned cells in a cell stream sequence (cell sequence numbers) before being moved during assembly of an ATM frame prior to transmission of said frame over said wireless link (col. 3, lines 5-9; col. 5, lines 30-35; col. 7, lines 50-60; col. 8, lines 20-36; col. 9, line 61-col. 10, line 9; and col. 12, lines 28-44); and restoring said original positions of said idle/unassigned cells within said cell stream based upon said recorded original positions after transmission of said frame over said wireless link (col. 3, lines 5-9; col. 5, lines 30-35; col. 7, lines 50-60; col. 8, lines 20-36; col. 9, line 61-col. 10, line 9; and col. 12, lines 28-44).

21. Regarding claim 31, Raychaudhuri discloses an apparatus for receiving an ATM cell stream sequence via a wireline link, encoding said ATM cell stream for transmission of data via a wireless link, receiving and decoding encoded wireless data received via said wireless link and transmitting another ATM cell stream sequence via said wireline link (col. 2, lines 51-58; col. 4, lines 41-59; col. 5, line 30-col. 6, line 24; and col. 8, lines 59-67), comprising: a wireline interface for receiving said cell stream sequence from said wireline link and transmitting said another cell stream sequence (col. 2, lines 51-58; col. 4, lines 41-59; col. 5, line 30-col. 6, line 24; and col. 8, lines 59-67); an encoder receiving cell stream data from said wireline interface, encoding said cell stream data and outputting encoded cell data (col. 2, lines 51-58; col. 4, lines 41-59; col. 5, line 30-col. 6, line 24; and col. 8, lines 59-67); a wireless interface for receiving said encoded cell data from said encoder, transmitting said encoded cell data via said wireless link and receiving previously encoded cell data (col. 2, lines 51-58; col. 4, lines 41-59; col. 5, line 30-col. 6, line 24; and col. 8, lines 59-67); a decoder receiving said previously encoded cell

data from said wireless interface, decoding said previously encoded cell said data and outputting said another cell stream sequence to said wireline interface (col. 2, lines 51-58; col. 4, lines 41-59; col. 5, line 30-col. 6, line 24; and col. 8, lines 59-67); and a control unit for controlling said interfaces, encoder and decoder (col. 2, lines 51-58; col. 4, lines 41-59; col. 5, line 30-col. 6, line 24; and col. 8, lines 59-67).

Claim Rejections - 35 USC § 103

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

23. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr (USPN 5,293,379) in view of Naimpally et al (USPN 5,650,825).

24. Regarding claim 15, Carr discloses a method of transmitting data over a link comprising the steps of: receiving a plurality of packets each having a header and a payload, said header including at least one field (length) (col. 5, line 46-col. 6, line 20); dropping said at least one field (length) from said header of each packet to thereby leave an unoccupied byte space in said header (col. 5, line 46-col. 6, line 20). Carr does not expressly disclose that a Header Error Correction (HEC) byte is dropped; however, Carr does disclose that Error Correction information (FCS) may be dropped from a frame (col. 5, line 46-col. 6, line 20). It would have been obvious to one of ordinary skill in the art at the time of the invention to drop the HEC since the HEC is "recalculatable" and thus the information can be derived at the receiver. Carr also does not disclose that the link is a wireless link or that the data is ATM cells; however, Examiner

takes official notice that wireless links are well known in the art as well as ATM cells. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use a wireless link and ATM cells. Additionally, Carr does not disclose inserting other non-HEC information into said unoccupied byte space; and transmitting each of said plurality of ATM cells. Naimpally teaches using idle/unassigned cells to transport additional information in order to take advantage of otherwise wasted bandwidth (col. 4, lines 15-40; col. 4, line 66-col. 5, line 5; and col. 12, lines 1-7). It would have been obvious to one of ordinary skill in the art at the time of the invention to insert other non-HEC information into the unoccupied byte space in order to take advantage of otherwise unoccupied bandwidth.

25. Regarding claim 16, referring to claim 15, Carr in view of Naimpally discloses regenerating said Header Error Correction byte from the remaining bytes in said header of each ATM cell after transmission of each cell (Carr: col. 5, line 46-col. 6, line 20).

26. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carr (USPN 5,293,379) in view of Naimpally et al (USPN 5,650,825) as applied to claim 15 above, and further in view of Woo et al (USPN 5,425,101).

27. Regarding claim 17, referring to claim 15, Carr in view of Naimpally does not expressly disclose generating a header syndrome; and identifying bits in error using said header syndrome; wherein when a single bit in error is identified in the header, correction of said bit in error is performed, and when multiple bits in error are identified in the header, an ATM containing said multiple bits in error is dropped and replaced by an idle/unassigned cell. Woo discloses, in a digital communication system, generating a header syndrome (Reed-Solomon) (Woo: col. 4, lines 50-57 and col. 9, lines 28-43); and identifying bits in error using said header syndrome

(Woo: col. 4, lines 50-57 and col. 9, lines 28-43); wherein when a single bit in error is identified in the header, correction of said bit in error is performed (Woo: col. 4, lines 50-57 and col. 9, lines 28-43). Carr in view of Naimpally in further view of Woo does not expressly disclose that when multiple bits in error are identified in the header, an ATM containing said multiple bits in error is dropped and replaced by an idle/unassigned cell; however, Examiner takes official notice that this is well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to drop a cell that cannot be corrected as is well known in the art.

28. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raychaudhuri et al (USPN 5,684,791) as applied to claim 23 above, and further in view of Matsushita (USPN 5,608,738).

29. Regarding claim 24, referring to claim 23, Raychaudhuri does not expressly disclose that the Payload Error Correction Code (PECC) is generated by a Reed-Solomon coding scheme since Raychaudhuri discloses that the PECC is CRC (col. 12, lines 28-35). Matsushita teaches, in a packet communication system, using a Reed-Solomon coding scheme to generate correction code since Reed-Solomon is a well-known error correction code (col. 4, line 45-col. 5, line 62). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a Reed-Solomon coding scheme to generate correction code since Reed-Solomon is a well-known error correction code.

30. Claims 25, 26, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raychaudhuri et al (USPN 5,684,791) in view of Bansal et al (USPN 5,285,441).

31. Regarding claim 25, Raychaudhuri discloses a method for encoding ATM cells for transmission over a wireless link comprising the steps of: receiving an ATM cell stream

comprised of a plurality of ATM cells from a wireline interface (col. 2, lines 51-58; col. 4, lines 41-59; and col. 5, lines 30-44) and assembling a payload frame (channel frame) comprised of payloads from said plurality of ATM cells (Fig. 4; col. 5, line 54-col. 6, line 24; and col. 8, lines 59-67) where the channel frame comprises the payloads of a plurality of ATM cells in addition to other information. Raychaudhuri does not expressly disclose detecting idle/unassigned cells within said cell stream and placing at least some of the detected idle/unassigned cells in a selected portion of the payload frame; however, Raychaudhuri does disclose that unassigned slots in the frame are detected and used for retransmitting cells (col. 2, lines 27-30). Bansal discloses, in an ATM transmission system, that idle cells are used to maintain a continuous cell stream when there are no user or OAM cells and that idle cells can be generated or discarded as necessary (col. 5, lines 1-7). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to detect idle/unassigned cells within said cell stream and to place at least some of the detected idle/unassigned cells in a selected portion of the payload frame in order to ensure there are unassigned slots in the frame that can be used for retransmitting cells.

32. Regarding claim 26, referring to claim 25, Raychaudhuri in view of Bansal does not expressly disclose that the step of placing idle/unassigned cells further comprises: adding extra Payload Error Correction Code in those idle/unassigned cells which are placed in the selected portion of said payload frame; however, Raychaudhuri in view of Bansal does disclose using a Payload Error Correction Code (Raychaudhuri: col. 12, lines 28-35) and adding extra information to unassigned slots in order to improve transmission quality (retransmissions) (Raychaudhuri: col. 2, lines 24-30). It would have been obvious to one of ordinary skill in the art at the time of the invention to add extra Payload Error Correction Code in any idle/unassigned

cells which are placed in said selected portion of said payload frame in order to take advantage of otherwise wasted bandwidth by increasing the level of error correction in the system such that errors could be corrected without the need for retransmissions.

33. Regarding claim 28, Raychaudhuri discloses a method for encoding ATM cells in a frame for transmission over a wireless link comprising the steps of: detecting idle/unassigned slots in an ATM frame stream (col. 2, lines 27-30); inserting error correction information (retransmissions) into some of said idle/unassigned slots (col. 2, lines 27-30); setting a first information field within said frame at a first state when error correction information has been inserted into any idle/unassigned slots within said frame (R-B and B-R control field) (col. 6, lines 2-24; col. 6, lines 31-60; and col. 10, lines 51-60) where the schedule and transmission table record the type of transmission; and setting said first information field at a second state when no error correction code has been inserted into idle/unassigned cells within said frame (R-B and B-R control field) (col. 6, lines 2-24; col. 6, lines 31-60; and col. 10, lines 51-60). Raychaudhuri does not expressly disclose detecting idle/unassigned cells in an ATM cell stream and inserting error correction code into some of said idle/unassigned cells; however, Raychaudhuri does disclose that unassigned slots in the frame are detected and used for adding extra information in order to improve transmission quality (retransmissions) (col. 2, lines 27-30). Raychaudhuri also discloses using error correction code (Raychaudhuri: col. 12, lines 28-35). Bansal discloses, in an ATM transmission system, that idle cells are used to maintain a continuous cell stream when there are no user or OAM cells and that idle cells can be generated or discarded as necessary (col. 5, lines 1-7). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to detect idle/unassigned cells within said cell stream

and to place extra error correction code in any idle/unassigned cells which are placed in a the frame in order to take advantage of otherwise wasted bandwidth by increasing the level of error correction in the system such that errors could be corrected without the need for retransmissions.

34. Regarding claim 29, referring to claim 28, Raychaudhuri in view of Bansal discloses the step of: storing a number of idle/unassigned cells used for extra error correction code in a second information field within said frame when said first information field has been set at said first state (Raychaudhuri: col. 6, lines 2-24; col. 6, lines 31-60; col. 9, lines 6-8; and col. 10, lines 51-60).

35. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raychaudhuri et al (USPN 5,684,791) in view of Bansal et al (USPN 5,285,441) as applied to claim 25 above, and further in view of Matsushita (USPN 5,608,738).

36. Regarding claim 27, referring to claim 25, Raychaudhuri in view of Bansal discloses identifying bits in error (Raychaudhuri: col. 8, lines 12-15) where an ATM cell containing bits in error is dropped (Raychaudhuri: col. 8, lines 1-3 and col. 12, lines 28-36) and replaced by an idle/unassigned cell (Bansal: col. 5, lines 1-5) in order to ensure the continuity of the cell stream (Bansal: col. 5, lines 1-5). Raychaudhuri in view of Bansal does not expressly disclose generating a header syndrome; and identifying bits in error using said header syndrome; wherein when a single bit in error is identified in the header, correction of said bit in error is performed, and when multiple bits in error are identified in the header, an ATM cell containing said multiple bits in error is dropped and replaced by an idle/unassigned cell. Matsushita teaches, in a packet communication system, using a Reed-Solomon coding scheme (header syndrome) to generate correction code since Reed-Solomon is a well-known error correction code (col. 4, line 45-col. 5,

line 62). It would have been obvious to one of ordinary skill in the art at the time of the invention to generate a header syndrome (Reed-Solomon); and identify bits in error using said header syndrome wherein when a single bit in error is identified in the header, correction of said bit in error is performed, and when multiple bits in error are identified in the header, an ATM cell containing said multiple bits in error is dropped and replaced by an idle/unassigned cell in order to correct errors without the use of retransmission.

37. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raychaudhuri et al (USPN 5,684,791) as applied to claim 31 above, and further in view of Woo et al (USPN 5,425,101).

38. Regarding claim 32, referring to claim 31, Raychaudhuri discloses that the encoder further comprises: a cell preprocessor for receiving said cell stream data, monitoring header bytes of incoming cells, and outputting cell data (col. 5, lines 8-44) and a frame assembler for receiving said cell data from said cell preprocessor, assembling said data in a frame and outputting said frame (Fig. 4; col. 5, line 54-col. 6, line 24; and col. 8, lines 59-67). Raychaudhuri does not expressly disclose detecting idle/unassigned cells by a preprocessor; however, Examiner takes official notice that detecting idle/unassigned cells is very well known in the art since idle/unassigned cells may be added or removed when necessary. It would have been obvious to one of ordinary skill in the art at the time of the invention to detect idle/unassigned cells by a preprocessor since this is well known in the art. Raychaudhuri also does not expressly disclose an encoder unit for receiving said frame and encoding said frame according to a predetermined coding scheme and an interleaver for interleaving and transmitting said frame to said wireless interface. Woo teaches, in a wireless system, using an encoder unit

for receiving said frame and encoding said frame according to a predetermined coding scheme in order to provide error correction (col. 4, lines 50-57 and col. 9, lines 28-43). It would have been obvious to one of ordinary skill in the art at the time of the invention to use an encoder unit for receiving said frame and encoding said frame according to a predetermined coding scheme in order to provide error correction. Woo also teaches interleaving frames together in order to reduce the impact of errors on the data stream (col. 9, lines 28-43). It would have been obvious to one of ordinary skill in the art at the time of the invention to have an interleaver for interleaving and transmitting said frame to said wireless interface in order to reduce the impact of errors on the data stream.

39. Regarding claim 33, referring to claim 31, Raychaudhuri discloses that the decoder further comprises: an acquisition and synchronization unit for receiving previously encoded cell data from said wireless interface, searching for a predetermined synchronization pattern in said previously encoded cell data, declaring a synchronization pattern, and outputting cell data (Raychaudhuri: col. 5, lines 64-66) where the synchronization process is implicitly disclosed; and a cell assembler for receiving said decoded cell data, assembling the decoded cell data into said another cell stream sequence, and outputting said another cell stream data to said wireline interface for transmission via said wireline link (col. 3, lines 5-9; col. 5, lines 30-35; col. 7, lines 50-60; col. 8, lines 20-36; col. 9, line 61-col. 10, line 9; and col. 12, lines 28-44). Raychaudhuri does not expressly disclose a byte deinterleaver for deinterleaving said interleaved cell data received from said acquisition and synchronization unit, deinterleaving said interleaved cell data and outputting deinterleaved cell data; a decoder for decoding said deinterleaved cell data received from said byte deinterleaver according to a predetermined coding scheme and

outputting decoded cell data. Woo teaches, in a wireless system containing an acquisition and synchronization unit (col. 8, lines 22-25 and col. 8, lines 38-43), using an encoder unit for receiving a frame and encoding the frame according to a predetermined coding scheme in order to provide error correction (col. 4, lines 50-57 and col. 9, lines 28-43) and using an interleaver for interleaving and transmitting a frame to a wireless interface in order to reduce the impact of errors on the data stream (col. 9, lines 28-43). Examiner takes official notice that it is well known in the art when receiving a signal to perform the reverse process of a process performed in transmitter in order to recover an originally transmitted data stream. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use a byte deinterleaver for deinterleaving said interleaved cell data received from said acquisition and synchronization unit, deinterleaving said interleaved cell data and outputting deinterleaved cell data and to use a decoder for decoding said deinterleaved cell data received from said byte deinterleaver according to a predetermined coding scheme and outputting decoded cell data in order to recover the originally transmitted cell stream.

40. Claims 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woo et al (USPN 5,425,101) in view of Scarpa (USPN 5,444,743).

41. Regarding claim 34, Woo discloses a method for decoding interleaved and encoded data received over a wireless link comprising: detecting a predetermined synchronization pattern in said encoded data received over said wireless link (col. 4, lines 50-57); passing said data to a deinterleaver and decoder when said predetermined synchronization pattern has been detected (col. 6, line 32-col. 7, line 49); determining a number of bytes in error in said data (col. 6, line 32-col. 7, line 49). Woo does not expressly disclose declaring a synchronization mode when the

number of bytes in error between successive synchronization patterns is less than a predetermined number. Scarpa teaches, in a communication system, declaring a synchronization mode when the number of bytes in error between successive synchronization patterns is less than a predetermined number (col. 1, line 57-col. 2, line 28) where it is implicit that this is done in order to ensure that synchronization is properly achieved. It would have been obvious to one of ordinary skill in the art at the time of the invention to declare a synchronization mode when the number of bytes in error between successive synchronization patterns is less than a predetermined number in order to ensure that synchronization is properly achieved.

42. Regarding claim 35, referring to claim 34, Woo in view of Scarpa discloses that the step of detecting includes setting a pattern search window of a predetermined number of bytes (Scarpa: col. 1, line 57-col. 2, line 28).

43. Regarding claim 36, referring to claim 34, Woo in view of Scarpa discloses declaring an identification of said synchronization pattern when a predetermined number of bytes of data are detected as matching said predetermined synchronization pattern (Scarpa: col. 1, line 57-col. 2, line 28).

44. Regarding claim 37, referring to claim 36, Woo in view of Scarpa does not disclose that the predetermined number of bytes is two; however, Woo in view of Scarpa does disclose that there is a predetermined number of bytes (Scarpa: col. 1, line 57-col. 2, line 28). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471

(1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Woo in view of Scarpa discloses that there is a predetermined number of bytes, any number of bytes, including two bytes, would have been obvious absent a showing of criticality by Applicant.

45. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woo et al (USPN 5,425,101).

46. Regarding claim 38, Woo suggests a method for decoding interleaved and encoded data transmitted and received over a wireless link comprising: deinterleaving said data and rearranging said data into a predetermined frame (col. 4, lines 50-57 and col. 9, lines 28-43); decoding said data according to a predetermined coding scheme (col. 4, lines 50-57 and col. 9, lines 28-43); detecting if any cells within a Header frame within said predetermined frame are uncorrectable (col. 4, lines 50-57 and col. 9, lines 28-43). Woo do not expressly disclose replacing detected uncorrectable cells with idle/unassigned cells; however, Examiner takes official notice that this is well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to drop a cell that cannot be corrected as is well known in the art.

Allowable Subject Matter

47. Claims 1-13 are allowed. The prior art does not disclose or fairly suggest creating a frame composed of the headers of a plurality of ATM cells in addition to creating a separate frame composed of the payloads of a plurality of ATM cells.

48. Claim 14 is allowed. The prior art does not disclose or fairly suggest overwriting the header bytes of each moved idle/unassigned cell with the recorded original positions of each corresponding moved idle/unassigned cell.

49. Claim 18 is allowed. The prior art does not disclose or fairly suggest recording a position of each first flagged nibble encountered in each predetermined number of ATM cells in control bytes contained in a header frame.

50. Claim 39 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest reading a plurality of header bytes within a header frame and forming a table of sequence numbers based on the read header bytes and reinserting idle/unassigned cells into the correct positions in the predetermined frame based upon the table of sequence numbers thereby restoring an order of cells occurring at a transmitting end of a wireless link.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (703)305-6970. The examiner can normally be reached on Mon.-Fri. 7:00-5:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703)308-6602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Daniel J. Ryman
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DJR

Daniel J. Ryman

STEVEN H.D NGUYEN
PRIMARY EXAMINER